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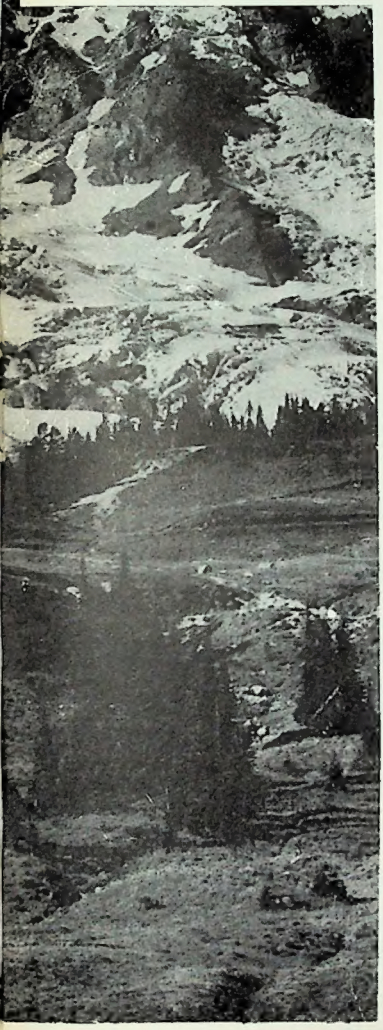

• NO. 8

WHAT BOTANISTS ARE DOING AS TO ORGANIC EVOLUTION

WHAT IS THIS EVOLUTION?

IS LIFE A CONTINUOUS FLUX?

THE CREATION STORY: FACTUAL OR SYMBOLIC?

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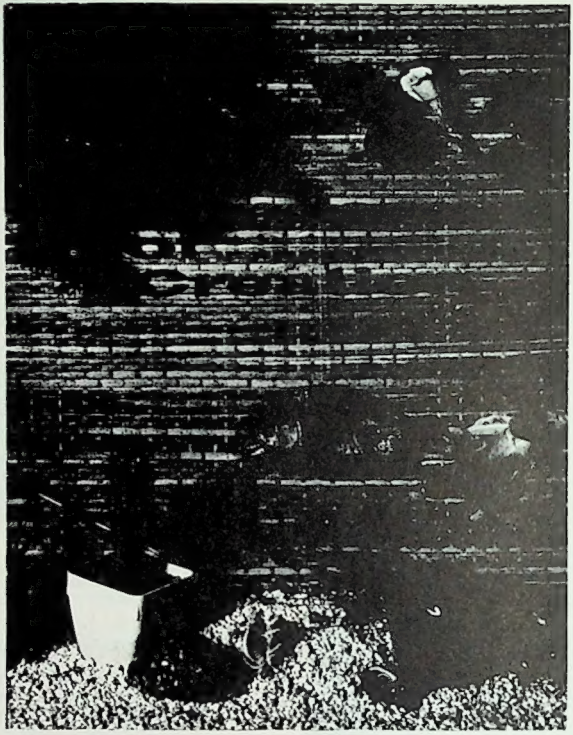

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What Botanists Are Doing as to Organic Evolution

By Professor George McCready Price

IT IS related that Thomas Henry Huxley, who was fond of calling himself "Darwin's bulldog," once listened to a sermon in which the theory of evolution was extravagantly praised. After the sermon Huxley said to a scientific friend who was with him, "Why, these gentlemen will soon be burning us for not going far enough!"

Modernists Out-Darwin Darwin

One is often reminded of this when one sees the way in which some modernist clergymen out-Darwin Darwin in claiming that the whole problem of organic evolution is as much a closed question as is the rotundity of the earth or the law of gravitation! One is driven to wondering whether such people ever read current scientific periodicals, or whether they are not retailing to the public things they may have read from the ardent evolutionists of twenty or thirty years ago, when Darwinism was in the heyday of its popularity. It is true, most scientists still profess to believe in evolution somehow, "as an act of faith." But if I were to characterize the present attitude of nearly all the leading scientists, especially those of England, toward the theory of organic evolution, I should have to speak of it as an attitude of sadness, uncertainty, and great perplexity.

Among the zoologists, the opponents of Mendelism (for there are still some who oppose Mendelian methods) are saying that they have been disappointed with these new methods of experimental breeding, because they are not getting us anywhere, so far as explaining evolution is concerned. As E. W. MacBride, the English embryologist, has expressed it, Mendelism has only led the evolutionists into a *cul-de-sac*, a blind alley.

The Tool They Will Not Use

On the other hand, the friends of Mendelism declare that these new experimental methods of breeding are the only real tool we have in attempting to solve the great problems of life; and they wonder why the reactionary Darwinists still prefer to stick to speculative methods. This is the language of Julian Huxley, in a recent retort to the critics of Mendelian methods:

> "It is a matter of constant surprise why many who profess themselves Darwinian of the Darwinians should not only not avail themselves of the new tool (Mendelian methods of breeding), but also evince positive hostility to it. The new principles are, indeed, the only tool we at present possess which is capable of putting evolutionary theories to experimental test. Yet, with a few honorable exceptions, most taxonomists and evolutionists prefer to stick to speculativ methods—speculative because incapable of being tested either by experiment or by calculation—and make no attempt to use the new principles in experimental attack, or, for that matter, even in interpretation" (*Nature* April 12, 1924).

One might almost call this a deadlock. It is, so far as these matters have a bearing—and they have a very important bearing—on the theory of organic evolution. Of course, each side is busily engaged in research work of its own; but very evidently it is not the theory of evolution which is progressing under such a scientific civil war as this.

Closed Off a Wrong Road

Dr. William Bateson, as is well known, is one of the foremost biologists of the world, and an ardent Mendelian. In a recent address he dwelt on this point of the antagonism which some scientists display toward the new methods of testing the principles of heredity and variation by means of experimental breeding, both with plants and animals. He repeats what he has said so many times that this new method "has not given us the origin of species"; but he goes on to say that it has done one splendid thing, "it has closed off a wrong road," namely the Darwinian theory that the small, fluctuating variations could ever be accumulated in any one direction and thus give rise to new species; for he says that the various distinct characters brought to view by these experiments "do not culminate in specific distinction" (*Nature*, May 10, 1924).

But he goes on to pay his compliments to those standpat Darwinians who oppose Mendelian methods as a means of investigating evolutionary problems:

"I notice that certain writers who conceive themselves to be doing a service to Darwinism, take thereupon occasion to say that they expected as much, and that from the first they had disliked the whole thing. I would remind them that the class of evidence to which we were appealing was precisely that to which Darwin and every other previous evolutionist had appealed" (*Nature*, May 10, 1924).

Mendel's Work Verified

It seems to be the botanists especially who are coming out most decidedly against the traditional evolutionary theories. It will be remembered that Gregor Mendel (1822-1884) carried on his now historic experiments chiefly with the common garden pea. Mendel's work was done in a very obscure way in a small monastery in Austria, chiefly during the third decade of the nineteenth century. The latter part of his life was spent amid the distractions of official duties; and it was not until the first years of the present century that his great discovery *the pureness or separateness of the various hereditary characters as they are transmitted from one generation to another*, was brought to the attention of the scientific world. Since then thousands of scientists in all parts of the civilized world have verified Mendel's laws through great multitudes of experimental tests with all sorts of plants and animals; and it has been found that these principles of heredity run all through the world of living organisms, both of animals and plants. As Edwin Grant Conklin, of Princeton University, expresses it: "At present it is practically certain that there is no other kind of inheritance than Mendelian" (*Heredity and Environment*, p. 99).

What the Botanists Are Doing

In this article I have space to deal only with some things which the botanists are doing. Dr. D. H. Scott is one of the leaders in this science, and in an address before the British Association in 1921 he pointed out how completely the new views have dispelled the older theories. Among other things Professor Scott spoke as follows:

"It has long been evident that all those ideas of evolution in which the older generation of naturalists grew up have been disturbed, or, indeed, transformed, since the re-discovery of Mendel's work and the consequent development of the new science of genetics. . . .

"At present all speculation on the nature of past changes is in the air, for variation itself is only an hypothesis, and we have to decide, quite arbitrarily, what kind of variations we think may probably have occurred in the course of descent. . . .

"For the moment, at all events, the Darwinian period is past; we can no longer enjoy the comfortable assurance, which once satisfied so many of us, that the main problem had been solved—all is again in the melting-pot. By now, in fact, a new generation has grown up that knows not Darwin" (*Nature*, Sept. 29, 1921).

"Only as an Act of Faith"

He goes on to protest that he cannot entirely throw away the idea of organic development somehow, "even if we hold it only as an act of faith"! This latter remark was based on the supposed evidence of a gradual development of plants and animals which has been derived from the fossils. Some readers of The Moody Bible Institute Monthly are aware that the present popular system of geology is and has been for nearly a hundred years strongly of an evolutionary cast; and that in my recent college text-book, *The New Geology*, I have endeavored to reform this wonderful science and place it on a sound basis of fact and common sense, so it will be like all the other up-to-date sciences, a record of facts and not a mere mass of fantastic speculations. Dr. D. H. Scott has recently issued a book dealing with fossil plants, in which he seems to render very doubtful the supposed evidences of fossil botany in favor of organic evolution.

Dr. Scott's book is entitled, *Extinct Plants and Problems in Evolution* (Macmillan & Co., London; 1924), and it seems to me to leave very little of the old theories regarding the evolution of plants from some common original ancestor. True, he still retains the idea that the various geological "formations" actually represent distinct ages in the world's history an idea which *The New Geology* has entirely discarded. Yet Scott does not see much chance to imagine the evolution of any of the great classes of plants from any others. On this point he says:

"The record shows no time-limit between Monocotyledons and Dicoty-

ledons, and throws no light on the possible derivation of the one clase from the other. Both extend far back into the Cretaceous, and throughout the whole time the Dicotyledons appear more numerous than the Monocotyledons, as they are at the present day" (p. 43).

As I have pointed out repeatedly, the various fossil groups of plants and animals merely represent ancient floras and faunas, buried at some time or times in the past; but they were all very local, or limited to small districts; and hence the folly of attempting to put some of them in one age of the world's imaginary past history and some in another, as the evolutionary system of geology has always done. In the light of the true view of the fossil world, these facts as stated by Professor Scott are perfectly understandable and altogether natural. But they are certainly very much opposed to the theory of organic evolution.

"On the whole," says Dr. Scott again, "one is impressed by the independence of the various phyla of vascular plants, all through the geological record" (p. 202).

Not Much Evolution Here

And yet this is one of the very latest books on this subject, in this year 1924, and its author is one of the foremost scientists of the world along this particular line.

Scott further says:

> "On a review of the whole evidence, the former belief in the origin of the Pteridosperms (and through them of the seed-plants generally) from ferns must be given up. We have no reason to believe that ferns, as botanists understand the name, are any older than the Pteridosperms themselves. . . . Thus the origin of the seed-plants is still an unsolved problem." (pp. 207, 208).

And he sums up the whole subject as follows:

> "The evolution of plants, so far as the record shows, does not present a uniform progression, but rather a series of diverse periods of vegetation, each with a character of its own" (p. 215).

As has been repeatedly pointed out elsewhere, these diverse groups of vegetation, "each with a character of its own," *are simply the ancient floras of the world before the Deluge*; and there is not a scrap of scientific evidence worthy of the name to indicate that they did not all live contemporaneously together. Geologists have artificially arranged them in an alleged chronological or historical order; but it is interesting to have this confession that even thus these ancient floras cannot be made to "present a uniform progression."

The real reason for the botanists being now in this predicament is that the arrangement of the geological "formations" has always been chiefly in the hands of the zoologists. They have been able to arrange the strata in such a way that the animals seem to "present a uniform progression"; but the botanists now find themselves unable to do the same with their fossil plants.

I do not think the botanists have had a fair chance in this matter of arranging the geological "evidence" in favor of the theory of organic evolution.

Numerous other quotations along these same lines might be given from this remarkably enlightening book. But I must pass along to note what some other botanists have been saying.

What Other Botanists Have Been Saying

In the year 1916, Dr. J. P. Lotsy, the Holland botanist, issued a book entitled, *Evolution by Means of Hybridization*. It is a very illuminating work, considering that the author had already published a large amount of work dealing with fossil botany. In view of this fact and the fact that Dr. Lotsy stands very high internationally in his own profession, one is delighted to find that he repudiates the evidences of the fossils which have so long been relied upon as one of the chief lines of support for the theory of organic evolution. On this point Lotsy says:

"Phylogeny, *i. e.*, reconstruction of what has happened in the past, is no science, but a product of fantastic speculations" (*Evolution by Means of Hybridization*, p. 140, The Hague; 1916).

I agree with him fully; only I wish that some one would bring this statement to the attention of Henry Fairfield Osborn and his staff, of the American Museum of Natural History, New York City. There are several departments in that great museum which evidently ought to be labeled: "Halls of Fantastic Speculations"; for they are chiefly occupied in deceiving the visiting school children and other ill-informed people with the idea that "science" has been able to trace out (by means of fossils) the evolution of such animals as the horse, the elephant, the camel, and even man.

Dr. D. H. Scott says that he cannot

go quite as far as Dr. Lotsy in repudiating all efforts to trace out the connection between the present living plants and those found as fossils; but he says that, "like Dr. Lotsy, I have become skeptical of late as to most phylogenetic reconstructions" (*Extinct Plants*, p. 18).

Literally a Hopeless Quest

But this revolt against the older evolutionary teachings is becoming very widespread among the botanists of England. In witness of this fact we have the address of A. G. Tansley before the British Association at the Liverpool Meeting (1923), in which he admitted that recent advances in botany seem to render the search for common ancestors among plants "literally a hopeless quest, the genealogical tree an illusory vision" (*Nature*, March 8, 1924).

Prof. A. C. Seward, of Cambridge University, supplements this with a recent statement that, "the present tendency is to discard the old-fashioned genealogical tree with its wonderful diversity of branches," as being in any way a scientific representation of the past history of the plant kingdom. Because, as he says, "A student who takes an impartial retrospect soon discovers that the fossil record raises more problems than it solves" (*Nature*, April 26, 1924).

In view of these statements, there is little wonder that Prof. F. O. Bower, of Glasgow University, in commenting on the present situation in botany, says that "at the present moment we seem to have reached a phase of negation," with regard to the long-popular amusement of certain scientists in seeking to trace out evolutionary pedigrees, at least so far as the modern botanists are concerned. But he also adds, "I believe that a similar negative attitude is also to be found among those who pursue zoological science" (*Nature*, March 8, 1924).

This is indeed a very interesting situation. Certain people who delight in calling themselves modernists are sometimes heard saying that progressive scientists are all on their side, that modern scholarship has settled long ago all these questions relating to the origin of plants and animals, and that all Christian workers and especially ministers ought to keep in touch with modern scientific progress. Unfortunately, many people who try to oppose the evolution doctrine often use quotations from authorities long since out of date and not at all representative of modern scientific discoveries. However, here we have some facts just as modern as any one could ask for; and the men whom I have quoted are among the very foremost leaders in the world in their respective lines.

Coming Round to the Bible View

Nor is it merely a negative attitude that these modern leaders in botany are taking. Not by any means. As long ago as 1906, Dr. H. B. Guppy, another leading botanist of England, put forward the idea that the origin of the great families of flowering plants must have taken place at some period in the past by methods quite different from those now prevailing under modern conditions, where we see chiefly or wholly a tendency to split up these larger groups into species, subspecies, and varieties. This view is (so far as here stated) so nearly in harmony with the Bible view of a literal and real creation of the various distinct types of plants and animals, that it deserves the close attention of all friends of the Bible.

The sharp distinction between the time when the original types originated and the present order of things when these same types are being more and more split up into subdivisions by means of hybridization and Mendelian segregation, is stated by Guppy as follows:

> "The age that witnessed the rise of the great families and the age that witnessed their subsequent differentiation, are things apart, and cannot be dealt with by the same method" (*Linnean Society's Journal*—Botany; 1919; p. 457).

Dr. J. C. Willis, in his *Age and Area*, issued last year, states that he has already adopted this view long ago; and he further says that this view completely reverses the ordinary evolutionary conception of the development of plants (and by implication that of animals also). For on this view the development of plants "did not proceed from individual to variety, from variety to species, from species to genus, and from genus to family, but inversely, the great families and genera appearing at a very early period, and subsequently breaking up into other genera and species" (*Age and Area*, p. 221; 1922).

Dr. D. H. Scott, in commenting on this theory of Guppy's, says there is nothing in fossil botany to refute this theory, so far as the origin of the great Angiosperm families is concerned; and the reader ought to remember that the Angiosperms include all the vast majority of the flowers and shrubs and trees with which

(Continued on page 92)

What Is This EVOLUTION

they are talking so much about, and concerning the teaching of which states are passing laws? We think we know, but do we? Let us be sure about it.

By HAROLD W. CLARK

EVOLUTION is again in the air. And the majority of people are asking what it is all about. When a score of states are agitated over the question, some of them to the extent of passing laws forbidding the teaching of the evolution theory, there must be something rather potent in the whole situation. For it is probably true that no other seemingly abstract problem has so deeply stirred the country in recent years as has this great question as to whether Genesis or modern science shall have the right of way when it comes to explaining the origin of the earth and its life.

Two points come up for consideration as soon as this question is approached: (1) What is meant by the word evolution? (2) Is evolution a settled, scientific fact to which religious doctrines must adjust themselves, or is it merely a theory? The first question we can settle without difficulty, and in answer to the second we can find many facts that will help us in drawing a safe and reasonable conclusion.

Evolution, as understood by scientists today, is the theory that all the present forms of matter as well as of living creatures have come from simpler forms by a process of advancing organization and development. In its larger aspects, it includes the evolution of the universe and of worlds, continents, climates, rocks, minerals, chemical substances, and all such material things, as well as the evolution of species of plants and animals.

The question over which the most discussion has arisen is that of the origin of the present species of plant and animal life. Most people care little whether God made the earth by a long process or a rapid one, but they are quite interested in knowing whether their forefathers were noble beings created in the image of God, or monkeys chattering

gibberish and swinging by their tails in some primeval forest. While the question of the origin of the world and its material constituents may not be as unimportant as it is regarded by many, yet for our present purposes we shall confine ourselves to the problem of the evolution of organic beings. We shall examine the evidence regarding the origin of species from simpler and more primitive forms, and see what scientific facts have to tell us.

Darwin Takes a Plunge

TO MOST minds Darwinism is synonymous with evolution; and the reason is that it was because of Darwin's plausible theory of natural selection as the cause of evolution that the scientists accepted the general idea of evolution as a fundamental truth. In surveying the situation during the first part of the nineteenth century we find that scientists hesitated to accept evolution because they could not find any reasonable evidence that it had really taken place; and in the face of this lack of evidence, they still held to some kind of a literal creation idea. Then in the middle of the century came Darwin with his observations and conclusions which developed into his natural selection theories.

Briefly stated, Darwinism was built on a combination of three ideas: (1) that variation occurs in all living things; (2) that those variations most fitted to survive become the progenitors of future forms, while the weaker die out; (3) that the influence of environment in thus weeding out the unfit, brings about a natural selection of the better races, which go on accumulating the favorable variations. In this way new species originate if given enough time.

Up to the time of Darwin, the geologists had not succeeded in getting the world to accept their notion of long ages of gradual succession of life forms in increasing complexity from simple to highly organized species, and the reason lay in their failure to give any logical explanation as to how this gradual change could have come about. Darwin's theories gave them what they supposed to be a satisfactory explanation, and so the geologists allied themselves to the evolutionary biologists, and the modern theory of organic evolution took form.

Darwin now Discredited

BUT since the time of Darwin, science has found out a good many things that Darwin knew nothing about. The result has been that his theories are not believed by the majority of scientists to-day. Natural selection, while it may operate in a limited degree in preserving certain more striking adaptations to the environment, has been seen to be entirely inadequate to explain the origin of new types. The reason for this lies in the finding of the fact that variation, instead of progressing in an endless amount in any certain direction, simply fluctuates around a common mean, and is as liable to go one way as another. Because one animal may be born with longer legs than another, and thus be able to escape his enemies, is no reason why his progeny should have still longer legs. On the contrary, they are just as likely to have short legs as if he had never had any variation in that direction whatever. And so variation, in the sense of a natural tendency to advance in certain

beneficial lines, is a myth that has no support in actual fact. Upon its failure the whole fabric of the theory of natural selection as an explanation of evolution falls to the ground.

In the year 1901 the scientific world discovered the laws worked out by the Austrian monk, Gregor Mendel, and with this new knowledge has come the explanation of how plants and animals do vary, and how far variation may go. The basic idea of this new knowledge is that the hereditary qualities of all living things depend on certain unit factors that are controlled by the chromosomes of the cells. In the processes of fertilization and cell growth, these factors are distributed, combined, and rearranged, with the result that every individual has a new and separate assortment of hereditary qualities. A variation in a certain direction in one individual may not have anything to do with the arrangement of these factors in his offspring, and so all chance of a continuous variation in any definite direction is eliminated. All the environment could possibly do would be to destroy whatever individuals happened to be entirely incapable of maintaining themselves because of a gross lack of essential qualifications. As for the struggle for existence being so intense and so finely poised that the least variation one way or another would mean success or failure, there is no evidence in nature for such an idea. Many good and many poor specimens are able to survive and to mingle their qualities, with the result that nature maintains an average for each race of plant or animal.

But Evolution Remains

WITH the passing of the one ray of hope in the logical explanation of the causes of evolution, scientists have given up the search for causes, and content themselves with classifying the living things of the earth on the *assumption* that likeness of form means evolutionary relationship. Fossils are classified as to age on the *assumption* that the simplest lived first and the larger and more complex lived later. Living types are classified on the *assumption* that plants and animals of simple structure represent the lower end of the evolutionary scale, while those that are large and complicated are at the top. It is no longer a question as to whether evolution took place or not, as far as the scientific world is concerned, but simply a question of the manner in which evolution has proceeded from certain simple types to others of more advanced construction. And so it is plain to any one who studies the present tendencies in science, that all present evidences are circumstantial. In the lack of direct evidence, *assumptions* take the place of proof, and theories are accepted without positive facts in their support.

Comparative anatomy is one of the most common circumstantial proofs used to show the relationships between different kinds of living creatures. Because, for example, all vertebrate animals have approximately the same number of bones in much the same positions, it is taken for granted that they have all arisen from common ancestors.

And because all higher animals during their embryonic development pass through stages that resemble simple forms of life, it is assumed that this is proof of their common evolution from simple to complex. But if one looks at these simple facts for a moment in the light of creative in-

telligence, he sees that these bits of circumstantial evidence prove just as much for the creation idea as they do for the evolutionary side of the case.

No Biological Proof

IN THE first place, we should expect all animals to grow from the germ in somewhat the same way, for surely there must be certain steps that would be better accomplished by following definite plans of development than by following a hit and miss plan. And what is most efficient for one would be the same for others. And as far as they could develop alike, they must do so, until the differences in the final plan made it necessary for them to branch. Here we see the reason why all higher animals grow alike, and why they are constructed on the same general plan. It is not at all necessary to believe that the protoplasm of the cells remembers past history and tries to recapitulate it. Such a notion is nonsensical and nothing less than the height of absurdity.

Evolutionists to-day see the absolute futility of an attempt to prove their theory by biological evidence, and so as a final and incontrovertible proof they fall back on the evidence of geology. As a last consideration, then, let us notice a fact or two from this field.

Practically every biologist will point to the geological scale, in which all the forms of animal and plant life are arranged in order, with the remark that in the earth you can find them in order, the simplest at the bottom and the complex at the top of the series. But what are the facts? We find that there are seldom more than two or three kinds of strata laid down in order in any one outcrop, and that as we go over the surface of the earth, these two or three may be anywhere in the geological scale from the very bottom to the very top. So on the *prima facie* evidence, no one could say which is the oldest, for they all lie on the primitive non-fossiliferous rocks of the earth. Then we find that the strata are not always in order, but are found bottom-side up, or with gaps of millions of years between different strata, according to the popular method of classifying them. In the face of the lack of objective evidence for the arrangement of the rocks of the earth in order, we may wonder how scientists know their age. And we may be surprised to find that the position of the rocks is no indication of their age, except in very local formations.

The only method by which geologists can tell the age of any rocks is to examine the fossils in them, and if the fossil evidence indicates great age, then it makes no difference what the plain objective evidence may be, the fossil evidence must be believed. And when we remember that the fossils are arranged in order from simple to complex according to theory, and not according to any position in which they may be found, we see the absolute theoretical foundation for the whole thing.

Reasoning in a circle never gets one anywhere, and it is just this kind of reasoning that is the basis for the evolutionary theory. The circumstantial proofs of evolution are backed up by geological evidence, but the arrangement of the rocks of the earth depends on the assumption that their plant and animal fossils evolved in a certain order.

(Continued on page **88** *)*

Is Life a Continuous Flux?

By Professor William J. Tinkle, Ph.D.

ONE DOES WELL TO CONSIDER the shifting tides of thought. Not that it is desirable to ride on the crest of thought waves; in fact we are commanded not to be conformed to the present age (Rom. 12:2). We cannot expect any age to have a standard high enough to serve as an ideal for the Christian. However, some recent changes seem to be in the right direction.

Twenty-five years ago, it was the rule in the biological sciences to point out that variations are universal. No two people, no two flowers, not even two blades of grass, are alike. When animals are born they resemble their parents, but each has enough individuality to distinguish it from its parents, and the next generation likewise will be slightly different. The statement has been made that nothing is universal except the lack of uniformity.

THE PRESENT TENDENCY is not to deny the above statements altogether, but to point out that they are relatively insignificant. The resemblance of plants or animals to their parents is more significant than their difference. Any generation is very much like the preceding generation, unless it has been developed in an extreme environment.

Corn grown on poor ground in a dry season may be very inferior to the average of its variety and may produce only a few kernels per plant. But if these kernels are planted in a good environment, the next generation of corn will be fully up to the standard for that variety. This variation, while it seems large, is not permanent; and scientists have learned the reason for this fact.

In the cell of a plant, or animal, we find a central dense structure called the nucleus. The most important structures within the nucleus are rod-shaped bodies called chromosomes, which contain the hereditary factors, or *genes*.

The chromosome number is constant for the species; that is, each cell in a corn plant has the same number of chromosomes as any other cell in that plant,[1] or any other plant of that species. Each cell in a cow has the same number of chromosomes as a cell in any other cow. This regularity extends not only to number, but each pair of chromosomes has its own individuality in shape and appearance, this pair being like the homologous pair in another animal of that species. They are found in pairs because one member of the pair was contributed by the father, the other by the mother. When a cell divides into two, each chromosome is split into two quite equal parts.

Since the chromosomes govern the development of the traits of an individual animal or person, and these bodies are kept constant by nature, the rule is for a species to remain the same. There are exceptions, of course, but outside of the fluctuations mentioned above, due to environment, exceptions are rare. The biblical rule is verified, that "men do not gather grapes of thorns, or figs of thistles."

THAT THE REGULAR COMPLEMENT of chromosomes is indeed necessary is proved by rare exceptional plants, in which a certain abnormality corresponds to a certain chromosomal irregularity. Go to the laboratories of the Carnegie Institute at Cold Spring Harbor, L. I., and the workers will show you Jimson weeds *(Datura)* with half the regular number of chromosomes, and having but little vigor. If they are strong enough to reproduce at all, the offspring is normal in chromosome number, in vigor and in appearance.

A plant that lacks one or more pairs of chromosomes never grows up. A plant with an extra chromosome, so far from being benefited thereby, is lacking in vigor and has a certain peculiar structure associated with the extra chromosome. When such aberrant plants produce seed much of it is sterile. But if the seed is viable, it grows up as a normal plant, not carrying on the peculiarity of its parent, but returning to the normal type of the species.

Thus the former idea that a species of plant or animal changes slowly but steadily into another type has been abandoned. There is a normal type for a species, kept constant by *genes* in the chromosomes, which seldom change.[2] Stability is the rule. Since these principles apply to people as well as to plants and animals, the human species is not like a tramp ship on an uncharted sea.

This scientific trend reminds the author of certain biblical passages: "Jesus Christ the same yesterday, and today, and forever" (Heb. 13:8). "From everlasting to everlasting, thou art God" (Ps. 90:2). "God created man in his own image, in the image of God created he him" (Gen. 1:27).

Since man is like God, we should expect our race to be essentially stable, as scientists are finding it to be. Furthermore, we can more easily believe that there was a creation, knowing that new species are not being built up at the present time.

[1]Reproductive cells have half the regular number, so that, uniting with other cells, the number is restored.
[2]Mutations are inherited but they occur rarely, and do not result in an improvement. A mutant individual is not more complex, more symmetrical, nor better able to succeed in the struggle for existence.

Moody Monthly July, 1945

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What Is This Evolution?

(*Continued from page* 86

And so, *what about evolution?* If it is true, certainly the proof of it is not as yet forthcoming. All its proofs fail to materialize into anything but the misty haze of speculation and assumption. And then there is always the other alternative of a direct creation as revealed in Holy Writ, a viewpoint which all the supposed findings of modern science have failed to overthrow when the facts are taken for what they are worth, cleared of the smoke screen of pretended wisdom that scientific hypotheses have thrown about themselves.

Evolution is the human attempt to explain in natural terms that which the Word of God states is the result of the fiat of Almighty God. As a scientific theory, it still lacks proof, and as a substitute for the Genesis record, it is a weak and miserable failure.

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THE WATCHMAN MAGAZINE JULY, 1925

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The Creation Story

Factual or Symbolic?

By Dr. Walter E. Lammerts

Our tradition, going back to Martin Luther, is to accept the Genesis account of the origin of the world in a literal sense. Persistent repetition that "all scientists accept evolution" has given many of our high school and especially college students concern as to whether, after all, we should compromise and believe the creation story only in a symbolic sense.

Many so-called "theistic" evolutionists combine poor theology with a lack of critical scientific evaluation concluding that evolution is God's way of creating the world. As a matter of fact, eminent proponents of the evolution theory such as Dobzhansky (1), Beadle (2), and Riddle (3) have no use for this intermediate position, correctly maintaining that if one can explain the origin of the inorganic world, and life in its varied forms, by natural causes, there is not need to postulate a God at all. With this conclusion I heartily concur, except that I do not subscribe to that all-important word IF!

Contrary to textbook statements, many scientists of reputable standing and achievement do not accept the evolution theory at all. Thus, within my own immediate acquaintances, at least 25 scientists doing creditable work in various fields are creationists. Some of the older experienced pioneers, such as the distinguished microbiologist Rene Dubos, have become disillusioned after years of work with the idea that science and a progressive evolution trend is leading to Utopia on earth. Thus Dubos has little good to say of evolution, maintaining it provides no answer to questions concerning the development of life (4).

Scientist Says No

The late Herbert Nilsson, director of the Botanical Institute of Lund, Sweden, is even more emphatic as judged by his recently published "Synthetische Artbildung." After reporting on his 30 years of work in this two-volume, 1130-page book, he asks, "Has there really been an evolution? Are proofs of its occurence tenable? After a detailed comprehensive review of facts we have been forced to give the answer, No!" (5).

Elliot G. Watson, British zoologist, writing for the *Saturday Evening Post,* lists four examples of life histories that simply cannot be explained by orthodox evolution theories. Thus the coral reef crab has claws so small as to be useless as weapons. But their backward curving teeth grasp the slippery bodies of small sea anemones, detaching them carefully from their hold on the rocks without injury. They are then held close to the pirate crab's mouth and continue to operate their tentacles so as to capture small creatures. These, the crab with his free front pair of walking legs removes as dainty tidbits, leaving those he dislikes for the anemones which are finally released unharmed.

Are these adaptations to be explained by chance mutations? Did

a chance modification of the claws prompt some ancestral crab to detach an anemone for the mere fun of the thing and by chance hold it near his mouth? If so, the crab passed on to its offspring this behavior tendency, and so through natural selection the crab species developed their close association with various anemones, the species differing, of course, to make the problem more complex, for each species of pirate crab. This, Watson says (6), reason simply cannot accept, and I agree.

Weaker Mutations

What then are these mutations appealed to by evolutionists as the material on which natural selection operates to develop new species? My own work on neutron radiation (7) of roses describes a technique by which we can induce 50 radiated buds of Queen Elizabeth, more mutations than could hitherto be found in a lifetime of searching among several million rose plants grown annually from non-radiated buds. Without exception, all mutations induced were found to be defective or weaker than Queen Elizabeth. Though some are possibly of horticultural interest, biologically they would hardly compete because of reduced vigor and partial sterility.

Dobzhansky (8), after reviewing conditions of "naturally" occurring mutations (now believed to be caused by cosmic radiation) found in the fruit fly, admits that only a few have greater viability than normal, and these only at temperatures higher than normal for the species. Yet he argues for evolution from such questionable cases.

Patau (9) has shown that mutations having even a one per cent survival chance increase in frequency from .01 to .1 per cent of the population only after 900,230 generations. Another 100,511 generations are needed to increase the frequency to 100 per cent. Reason staggers at the enormous amount of time needed to transform fish into man!

Simultaneous Eruption

Sanderson wrote a fascinating story of the "Riddle of the Frozen Giants" in one of the recent issues of the *Saturday Evening Post* (10). He argues very persuasively for the destruction of thousands of mammoths by sudden freezing. His explanation is the simultaneous eruption of 20 or more volcanoes shooting hot gases high into outer space. There they cooled to 150°F and on suddenly descending instantly froze them, completely preserving their flesh as in a deep freeze. The rains, tidal wave action, and continental floods resulting make the usual interpretation of the Genesis flood seem a tame affair by comparison. This brings us to the question of just what this flood really was.

Actually, many well-meaning pastors and teachers have pictured it as being a rather gradual and even local affair limited in its re-

(Editor's Note: Dr. Walter E. Lammerts is director of research of Germain's Horticultural Research Division, Livermore, Calif. He holds the Jackson Dawson Memorial Medal, given by the Massachusetts Horticultural Society, for his success in hybridizing roses. He also received the John Cook and Gertrude H. Hubbard Medals from the American Rose Society for the rose, Charlotte Armserong, which has become parent of at least a dozen All-American Rose Selection winners. It was also voted a Gold Medal by the American Rose Society in 1944 as being the start of a new strain of American roses. In 1957 he received another Gertrude M. Hubbard Medal for his Queen Elizabeth, first of the grandiflora class, as being the best American rose of the past five years.

Dr. Lammerts also has developed a number of valuable hybrid peaches, lilacs adapted to warm winter areas such as Southern California, and other ornamental shrubs. His latest rose introduction, San Francisco, combines an unusually vivid oriental red with a vigorous plant having large glossy foliage which is highly resistant to black spot. This variety is remarkably hardy and one of his most unusual creations.)

sults to the destruction of mankind living only in the rather flat Tigris-Euphrates Valley. However, careful study of Genesis indicates that it was worldwide and very violent in its action. Every pastor and layman who wishes to be well informed should read *The Genesis Flood* by Morris and Whitcomb. These authors take the same position as did Martin Luther, Melanchthon, and more recently Rehwinkel (11), i.e., that all the sedimentary rocks, many of the great lava flows, as well as the submerged mountain regions now being found under the ocean are the result of this great disturbance. The after effects continued for thousands of years resulting in such phenomena as more lava flows, repeated burial of forests as in Yellowstone National Park, world-wide glaciation, interior lakes such as Lahontan, and vast alluvial fans almost covering mountain peaks in what now is the great Southwestern desert area.

Not Adequate

Morris (12) argues very convincingly that present-day geologic activities appealed to by Sir Charles Lyll and known as a doctrine of Uniformitarianism are in no way adequate to explain either the geologic formations, mountains, or other geographic features of the earth. Thus Operation Mohole studies (13) show that instead of the average 18,480 ft. of sediments on the ocean bottoms expected by multiplying the annual rate of sedimentation by the postulated millions of years, only about 1,800 ft. are found. This "mystery" to the Uniformitarian school of geologists is just what Flood geologists would expect.

We, as creationists, also must realize the effect of God's curses upon the earth. Thus after the fall of man in the Garden of Eden, the ground was cursed for man's sake with the statement that "thorns and thistles should grow." Quite obviously this implies the rapid transformation of many already existing plants into their present thistly and thorny condition by alteration of gene action. The variability potential of the various kinds of animals preserved in the Ark along with Noah was also increased, thus making it possible for them to adapt to the unusual new environmental conditions with which they were confronted as they repopulated the earth.

Intricate Steps

Since we are made in God's image, someday we may learn how He created the marvelous physical universe with its manifold plants and animals. We may even be able to make that metropolis of activity called a "simple" cell. But such making of life would surely not imply that the intricate arrangements of neutrons, protons, neutrinos, electrons, and other physical units we laboriously put together could ever have assembled themselves as evolutionists claim. For should such wisdom ever be granted to man, you can be assured the steps involved will be so intricate as to make a Swiss watch seem the work of a child.

We are now at the threshold of an exciting era in biochemistry in that workers are beginning to unravel the code and learn just how the gene works through desoxyribonucleic acid (D.N.A.) and its partner in activity, riboenucleic acid (R.N.A.). The conversion of inert chemicals into living units of activity as related in Gen. 1:11, "Let the earth bring forth" may well be arrived at by precise knowledge of the chemical nature of these complex molecules arranged in helical fashion. Our increased understanding of how God put together these intricate patterns can hardly lead us to a naive belief that they could have assembled themselves as evolution philosophy implies. It should lead us to an ever-increasing reverence for, and awe of, God's infinite wisdom.

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Lutheran Layman, July 1, 1962

Botanists and Evolutionists

(Continued from p. 82)

we are familiar. Says Scott:

"We know nothing whatever of the origin of the Angiospermous families, so the field is open to speculation" *(Extinct Plants*, P. 217)

No, not "open to speculation." We have had enough of that. But it is as clear as sunlight that the way is now clear for us to say in the light of the latest and best of scientific research, that there must have been a real creation at the beginning to serve as the start, the origin, of these great general groups from which the modern wide diversity has subsequently been derived.

"In the beginning God created."

Moody Monthly September, 1924

Who Made the Stars?

(Continued from page **95**

of galaxies, together with their component stars and attendant companions, the sun and its planets including our own world; or else he will believe in the supposed spontaneous origin and evolution of all these and of ourselves as well from an initial nothingness or from no-one-knows-what.

It is unthinkable that matter or energy could come into existence without a Source, or become organized without a Designer and Maker. There is no more adequate explanation of the origin of planets, stars, galaxies, and of the very actuating energy itself of the infinite universe than that given in the inspired word of God. The power of God exceeds that of all the myriads of celestial bodies. He is the Creator and also the Maintainer of all nature.

"Praise Him, sun and moon, praise Him, all you shining stars! . . . For He commanded and they were created. And He established them for ever and ever; He fixed their bounds which cannot be passed." Psalm 148:3-6, R.S.V.

In the light of God's own message to mankind the everlasting gospel for these days is, "Worship *Him that made* heaven, and earth, and the sea, and the fountains of waters." Revelation 14:7. Through His divine Son, Jesus Christ, "He is able also to save them to the uttermost that come unto God by Him." Hebrews 7:25.

[1] See Harlow Shapley, "The Universe of Stars," Harvard Observatory, 1926, pp. 154, 155.

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[4] "The Starry Universe," "Life," December 20, 1954. Copyright, Time Inc.

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WHO MADE THE STARS?

by R. E. HOEN

THE starry heavens show us the immensity of the universe in contrast to the utter insignificance of mankind. Through all recorded history, men have tried to unravel the mysteries concealed in the motions and magnitudes of the stars.

Three and a half centuries ago Galileo first used a telescope. Soon thereafter Sir Isaac Newton discovered the basic laws of gravitation and motion. The understanding of these laws, together with new and more accurate means of mathematical calculation, made possible the prediction of future positions of planets and other heavenly bodies. Within the nineteenth century the genius of Fraunhofer and Bunsen resulted in development of the spectroscope for analysis of light. Used in conjunction with the telescope, this instrument has permitted determination of the composition of the gases which surround distant stars and suns.

The distances from us to the planets and to the nearer stars can be measured directly by a surveyor's method, that is, by the change of apparent position of a remote object as it is viewed from two different locations. But this procedure can be employed only when the distance does not much exceed a hundred times that of the nearest star, Alpha Centauri, which is approximately four light-years away from us. (A light-year is the distance light travels in one year, or about six trillion miles.) Only a relatively few stars are as near to us as four or five hundred light-years, and estimation even of such distances requires measurement of angles comparable to that made by the diameter of a cent as seen from the distance separating New York and Boston.[1]

To estimate the distances of more remote stars and star groups, astronomers have used very indirect methods. Some stars vary in brightness at regular intervals of from a few hours to a considerable number of days. For a few of the nearer variable stars it has been observed that the longer the period between times of maximum brightness, the more luminous the star seems actually to be. Therefore it is *assumed* that all stars, anywhere, that vary in brightness at a particular frequency are of exactly the same absolute magnitude. Of course any bright object *appears* fainter when it is farther from us. Since great numbers of variable stars appear to be very faint, it is concluded that these must be exceedingly remote, at distances estimated to be up to billions of light-years away. It is recognized by astronomers themselves that the figures found in this way are very inexact. Nevertheless they do portray something of the incomprehensible immensity of the universe.

Contemplation of such measureless distances can well cause us to exclaim with Eliphaz of old: "Is not God in the height of heaven? and behold the height of the stars, how high they are!" Job 22:12.

The great advantage of a telescope over the unaided eye is twofold. A large lens or mirror permits concentration of the light from distant stars which would be too feeble to be seen through the small aperture of the eye alone. Then, too, a camera can be attached to a telescope so mounted as to follow the stars for several hours. A long exposure in this way with sensitive photographic plates will record star images that could not be seen directly even with the same telescope.

As larger and larger telescopes have been constructed, it has become possible to record increasingly greater numbers of stars and galaxies. Within the range of the largest telescopes in use at present, the estimate of the number of galaxies and their component stars now runs into trillions. We may think that the couple of thousand stars we can see at one time on a clear evening are innumerable. But for every one visible there are perhaps a million others so far away that they are too faint for our eyes to discern.

Modern devices have enabled astronomers to chart the heavens diligently and with increasing thoroughness. They have determined the motions, magnitudes, and composition of untold numbers of heavenly bodies. Thus the horizon of astronomical knowledge has been extended enormously. But men are not content with mere information, however interesting and intriguing that may be. There is in the mind of man a constant and insistent urge to explain how and why things behave as they do. Speculation has resulted in one theory after another concerning the origin of our earth, of the solar system, and of the stars and galaxies as well.

As astronomers observed the cloudlike appearance of distant nebulae, many of them presumed that they were watching stars and solar systems in the making. They imagined that the wisplike spiral arms seen in some of these hazy celestial clouds were the beginnings of new planets, and that the more brilliant central regions were in the process of condensing into blazing suns like our own.

For a time the nebular theory of Laplace was the widely espoused explanation of the supposed evolution of our sun and its family of planets. Erelong physicists recognized that such a theory failed to account for the way in which energy is distributed among the planets and the sun. If, as Laplace presumed, the entire solar system was once a single mass of gas which later shrank and condensed into the present separate units, it would be expected that each portion would retain the proportionate part of the energy of rotation which it possessed before shrinkage occurred. But though the sun contains more than 98 per cent of all material of our entire solar system, its rotational motion represents less than 3 per cent of the energy of motion of sun and planets combined.

Within the present century the newer planetesimal, tidal, and cosmic-cloud theories of planetary evolution have been proposed by Moulton, Chamberlin, Jeans, Kuiper, Haar, and others. But these likewise fail to account for the energy of motion of the sun and of any other body or bodies concerned with their supposed evolution. Astronomers frankly recognize this difficulty, though they still persist in believing that planetary evolution has occurred.

One outstanding writer on this subject has said: "In one respect, Jupiter excels the sun: the giant planet possesses most of the total energy of rotation of the solar system—far more than the sun itself. . . . This fact has always been one of the great difficulties in the path of a theory of the origin of the solar system; almost all the theories that have been moderately successful in other ways seem to require that the sun possess the greater part of the energy of rotation of the whole."[2]

In a recent issue of *Science* magazine P. S. Palmer cited an array of objections against cosmic-cloud theories for

the origin of the solar system. He concludes: "Obviously, if the condensation of the planets is an imaginary event, most observational data will necessarily be contrary to conclusions drawn from that fantasy. Mass, composition of planetary bodies, momentum, and angular momentum are too real to be derived from folk tales, and hypotheses that fail to explain so many facts or to conform with so many principles are no more entitled to acceptance than folk tales."[3]

Almost everyone has noticed that the pitch of a whistle or a bell changes as the vehicle bearing it moves toward or away from the listener. While the source of the sound is coming nearer, the sound waves are crowded together and cause the pitch of the note to be raised, and after it has passed and is receding, the sound waves are spaced farther apart, producing a lowered pitch. This is known as the Doppler effect. In an exactly similar manner the wave length and corresponding color of the light from a star change as the star moves toward or away from us. When viewed through a spectroscope, the spectral lines are shifted toward the violet range —a higher frequency—if the distance to the star is decreasing, and toward the lower-frequency red if the star is moving away. Because a considerable number of the stars and star groups display a so-called "red shift," many astronomers have concluded that ours is an "expanding universe," that is, that the galaxies of stars are rapidly moving away from a common center and from each other.

This idea has reversed nearly completely the older theories based on the idea that a once-gas-filled universe has condensed and consolidated into stellar and planetary units. In a recent issue of *Life* magazine, Lincoln Barnett asserts, "Today it is the almost unanimous view that the outrush of the galaxies is no illusion but an actual and awe-inspiring phenomenon of the mysterious universe." However, after all the evolutionary philosophy presented in his series of essays, the same writer makes a significant admission concerning this "expanding universe" aspect of present-day cosmology. He says, "Its theorists are constantly tormented by uncertainty as to the choice of their concepts, and beset by doubts as to the accuracy of their interpretations. The whole phantasmagoria of the outrushing galaxies and expanding space so assails the imagination as to make even cosmologists question the intricate framework of observation and deductive reasoning on which it rests."[4]

With all their speculations professedly directed toward discovery of the "origins" of planets, stars, and galaxies, evolutionistic astronomers fail to show or even to consider the *ultimate source* of the material of which these are composed. The billions of years of presumed development lead nowhere but to something supposed to be capable of producing by its own inherent efforts the present universe of celestial bodies.

But what lay back of that? Why should the material of the system have lain dormant and not have developed additional billions of years sooner? And if the tendency of matter was to produce the forms and conditions of the actual present or of the postulated future, why should the material not have originated in the form of the going concern of the present rather than in the unstable pattern which evolutionists presume to have been the initial one?

After all, one may ask, Why be concerned at all with the theories and speculations of astronomers? The question really is a serious one. It concerns every informed person, for no longer is it a matter merely of armchair philosophy. It now underlies belief and religious convictions. One either must believe that an infinite, omnipotent God *created* the matter and energy of the universe

(Continued on page 92)

The Time Factor in the Theory of Evolution

By Oswald T. Allis, Ph.D.

ACTIVITY in politics might be regarded as a very good preparation for participation in any movement likely to arouse antagonism and controversy. And Mr. Bryan had back of him a long and checkered political career before he began to take an active part in the theologico-scientific controversy which has become such a burning issue in the Christian church. But despite this preliminary training, Mr. Bryan has confessed to surprise at the fury of the storm that has raged about him since he first tried conclusions with the evolutionists. "Unscientific" is one of the milder epithets, "ignoramus" one of the more vigorous characterizations, now bestowed upon one who, before he entered into this controversy, had received honorary degrees from many institutions of learning throughout the land.

The writer is one of those who believe that while Mr. Bryan falls far short of being an expert when it comes to the technical questions which enter into the problem of evolution—Mr. Bryan would certainly be the last man to deny this—he has nevertheless presented the "common sense" argument against this "scientific" theory with remarkable ability; and that the strength of his argument can be measured with considerable accuracy by the fury of the storm which he has provoked. It is sometimes easier to denounce an adversary than to answer him!

Hearing Mr. Bryan speak on Evolution, several years ago, the writer was especially impressed by his "hat argument," an argument used to show that the evolutionists are, as he expressed it, "long on time." Mr. Bryan was answering the claim of his opponents that the present revolt against evolution is to be compared with the unwillingness of "the church" some centuries ago to accept the contention of scientists that the world is round or to believe in the law of gravitation. Mr. Bryan's reply was that the cases are not strictly parallel. If, said he, any man does not believe that the world is round, all he needs

to do is to travel round it. And if he does not believe in the law of gravitation, let him go out into a field and throw up his hat and watch it come down. But, said Mr. Bryan, suppose you were to go out into the field and throw up your hat, and it did not come down, and your friend the scientist were to say to you, by way of explanation: "Oh, wait a thousand years, and it will come down!" The law of gravitation would not be quite so convincing then. And one of the reasons that Mr. Bryan is so convinced that evolution is an "unproved hypothesis" is that it makes such unconscionable demands upon the time-factor in order to establish itself as a "fact."

That the evolutionist is "long on time" should be clear to every one. When Mr. Wells speaks of turning over the record "for, it may be, another one hundred thousand years," in order to pass comfortably from the "Heidelberg" man to the "dawn" man, he is simply using the stock phraseology of the evolutionist. And he is in such good company that it is not surprising he should be unconscious how grandiloquent such language sounds when it comes from the lips of one who is not sixty years old, and whose allotted span of life is three score years and ten, or by reason of strength, four score years. Though his days are but a "hand breadth," the evolutionist speaks of a thousand years, yea, a million years, as if they were but a day! The extremes to which this is being carried is illustrated by the following:

"The annelid represents the culmination of millions of years of increasing experiments of our progressive vermian ancestors. The aberrant forms mark a few of the partial successes. The failures, and they seem almost innumerable, have disappeared and left no trace." (Tyler, "The Coming of Man," page 72.)

This statement, it is to be carefully noted, is not taken from a "popular" article, nor is it the opinion of an irresponsible enthusiast. It is made by one who was for forty years professor of biology in one of the best known of the smaller colleges of this country, Prof. Henry Mason Tyler, of Amherst. Let us examine the statement for a moment.

The annelid, Professor Tyler tells us elsewhere, is the "highest worm." If it took the ordinary worm, or even the most elementary worm, the most primitive of our "vermian ancestors," millions of years to reach the annelid stage (the annelids are still worms!), how many million million million million years would it take our "pro-

gressive" ancestors, supposing there were no strikes and they even worked overtime, to produce the *genus homo sapiens?* It staggers the imagination to think of it!

Again, notice that most of the time of our "ancestors" seems to have been taken up during these millions of years in making "failures." These failures, Professor Tyler assures us, were "almost innumerable!" Yet he adds that they "have disappeared and left no trace." Certainly our vermian ancestors must have been very skillful in covering up their tracks. Perhaps they were ashamed of them, and regarded the fireplace a safer repository than the scrap basket! Or are we to thank the gentle hand of Time, the millions of years spent in this great enterprise, and the myriad millions since its culmination, for the tragic fact that so little evidence (only the aberrant forms) of their stupendous toil has come down to us. Tragic? Not for us, perhaps, for the study of failures is sometimes a far from edifying one; and we can, if we only will, learn enough from the failures of our human kind, without allowing the spectre of the failures of the ancestral worm to haunt us. But, tragic for Professor Tyler and the evolutionists. For, if the evidence that our vermian ancestors spent most of their time in making failures has disappeared and left no trace, how can we be sure that such was actually the case? Would it not be a more generous attitude to assume that they were reasonably and even rapidly successful? If there is no proof of failure, why assume it? Failure has a tendency to discourage us. Surely our vermian ancestors must have been of sterner stuff than their degenerate descendants if they were willing to devote millions of years of which the record must be described as largely failure to the evolution of an annelid. And if the tragic experience of an ancestral worm, as thus briefly summarized by Professor Tyler, be true, if its attempts to reach the super-worm, were such a chronicle of failure,

> what ground have we for entertaining rosy hopes that eugenics will speedily present us with that splendid culmination of our race, the superman? Judged by past experience, it may take a million years at least. The millennium of the evolutionist is a "far-off"—we hesitate to add "divine"—event," and we are moving toward it very, very slowly!
>
> But the most striking thing about this statement of the learned professor is the way in which he, unconsciously it seems, attributes a purposiveness which

suggests the modern expert on eugenics to the worm. To speak of the "increasing experiments of our progressive vermian ancestors," of their "successes" and their "failures," is to attribute to them conscious or unconscious (if there be such a thing) intelligence. It seems absurd to speak thus concerning worms. Yet Professor Tyler seems to be speaking seriously; though what he considers the "resident force" responsible for these purposive, though usually futile, experiments, we are not prepared to say. Elsewhere he allows himself to wax facetious. Speaking of the evolution of the eye, he says:

"The eye, at first a mere light-perceiving speck, aids in perceiving the direction of the source of light, and ends by forming images of surrounding objects. Imagine the furor in some learned society of annelids, when Alciope [one of the varieties of annelid] announced and maintained that he could see and distinguish the form of an object almost an inch distant." (Ibid, page 100.)

Apparently Professor Tyler is something of a humorist. It would almost seem as if he were poking fun at himself, and at his readers as well; and advising the latter not to take him or his theories too seriously. But the book is not intended as satire, nor is it a romance. Its author is a convinced evolutionist. He apparently is so certain of the correctness of his theory that he can afford to speak jestingly of its humorous aspects. It is the attitude of a man who is perfectly sure of his position. And yet it is a tragic kind of levity, to turn the discussion of a great and vital question into a jest. Is Alciope a man? Let him stand forth and tell us how he maintained this startling optical discovery of his in the councils of the annelids. No, Alciope is a worm, and not a man; and to read into his base animal existence an increasing purpose and make him speak the language of the modern scientist, is as grievous a bit of subjectivism as can well be imagined.

The scientists may rail, if they please, at Mr. Bryan, and make sport of what they choose to call lack of scholarship. But we believe they would find it difficult to find in his discussion of evolution anything as unscientific and preposterous as the statements which we have quoted from this distinguished advocate of the cause of evolution. The reason they are so wrathy at Mr. Bryan is because he has found the weak point in their armor. They are long on time! And when men who cannot add a handbreadth to the measure of their life, who cannot make one hair white or black, talk learnedly of the eugenic experiments of their vermian ancestors millions of years ago, they are talking "scientific" nonsense, and darkening counsel by words without knowledge.

—The Presbyterian, Jan. 15, 1925

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